Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

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MAY
1935

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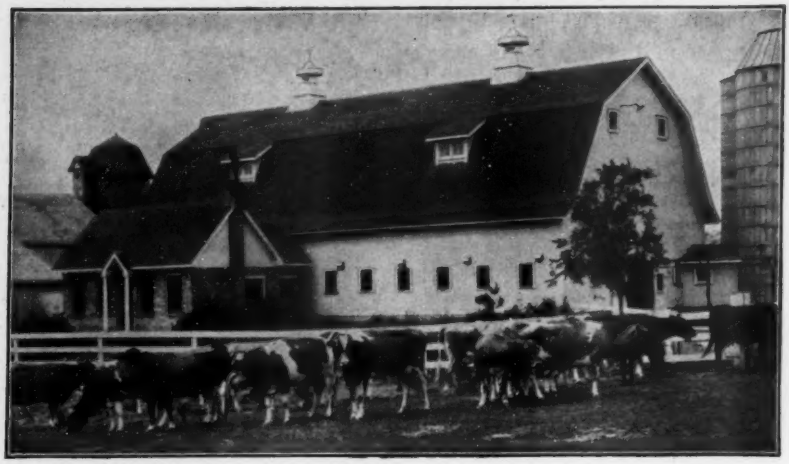
without increasing your herd!



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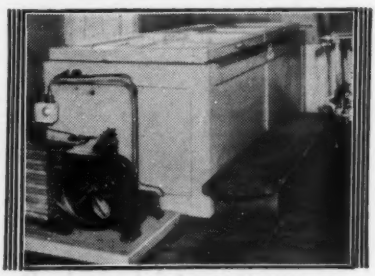

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GOULDS

Vol. 8. No. 5
May, 1935

Electricity on the Farm

EDITORIAL

AN article elsewhere in this issue, by Truman E. Hienton, on electrical refrigeration is worthy of careful study.

The benefits to the farm home of this modern method of food preservation are set forth in a very convincing manner.

In addition to its ability to reduce food spoilage, the electric refrigerator eliminates other causes of illness on the farm. For example, natural ice harvested from ponds or streams frequently serves as a carrier of harmful bacteria which are present in bodies of water used for ice production. Thus natural ice employed for cooling drinking water may transmit to the drinker serious illness.

The electric refrigerator, producing ice from pure water, eliminates this danger.

Hence with its money saving and health protective qualities, the electric refrigerator is one of the most useful and profitable additions to the equipment of the modern farm.

THE PUBLISHERS.

IN THIS ISSUE

Refrigeration Reduces Food Losses

Electric refrigeration is today solving the problems of many farmers. It preserves the food for the housewife, keeps the milk and cream sweet in the dairy and stands guard over fruit and vegetables, keeping them fresh for market. The author on page 7 outlines how this modern convenience is serving farmers in a wide variety of uses.

Running Water or Running Feet

BY GEORGE W. KABLE

The water pail still stands supreme in many farm homes, and running feet, which are often weary, trod the beaten path to the pump to keep the pail filled. Why not let the water do the running—right to the location where it is most needed, whether it be kitchen, barn, dairy or garden. A modern electric water system will be a popular improvement with the entire family. See page 10.

Cooking by the Clock

BY VERA MEACHAM

Many persons are skeptical about claims made for certain equipment until convincing facts have been presented. And, the electric range is no exception with these folk. Hence, with this idea in mind the author set forth to assemble facts which will assure those unfamiliar with the swiftness and convenience of the modern electric range that it stands in a class all its own. Turn to page 13.

Handling Hay the Modern Way

BY S. O. MILLER

The electrified hay hoist is the modern method of handling hay. There are several reasons why such a piece of equipment deserves a place on every farm where a hay crop must be handled. Besides being a time and labor saver, it is economical to operate. The author explains on page 16 the common types of hoists now in use.

Regular Monthly Features

Electrical Housekeeping, page 18; On the Air, page 23; Questions and Answers, page 25; What's New, page 26.

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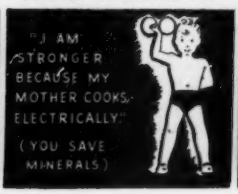

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MISCELLANEOUS:

Feed Grinders — Ensilage Cutters — Corn Shellers —Hay Hoists (see advt., page 24)—Feed Mixers—Stationary Spray Plants (see advt., page 17)—Burglar Alarms—Ventilators—Soil Heating Equipment—Radio Sets (see advt., page 20)—Electric Fencing Units (see advt., page 22).

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Mrs. Ashley R. Smith, Kokomo, Ind., at the large refrigerator in her farm home.

REFRIGERATION REDUCES FOOD LOSSES

By T. E. HIENTON

ELECTRICAL refrigeration is today helping growers to solve problems of the orderly marketing of many products from dairy, fruit, vegetable and general farms to their financial benefit. Refrigerated storage rooms and refrigeration machines enable producers to cool and hold marketable produce until market demands will absorb it at a price returning a profit to them.

In past years many farmers were engaged merely in the production of crops, relying on others to market and distribute these products. The advent of electric service from rural electric lines

Storage tank type electric dairy refrigerator on Reliable Dairy Farm, South Bend, Ind.

This is the cold storage house at the Coffing Brothers orchard near Silverwood, Ind. Its capacity is 40,000 bushels of apples, whose safety in keeping is guarded by the electrical refrigeration unit illustrated below.

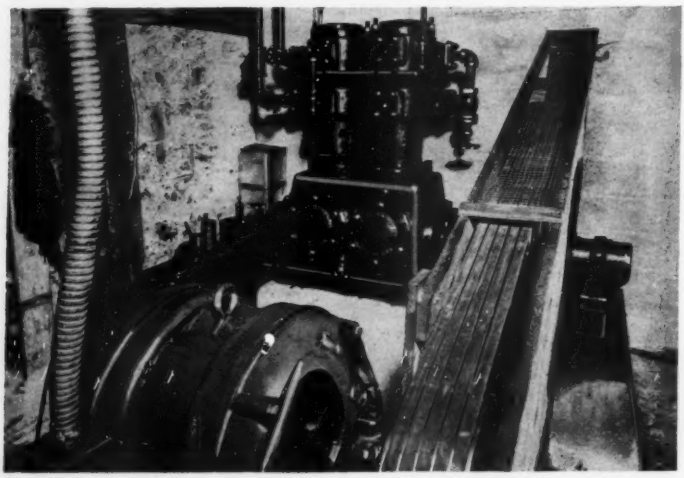
on hundreds of thousands of farms in the United States, which has occurred largely during the past decade, has made possible utilization of electric refrigeration as an aid in marketing products directly from the dairy, orchard, market garden or general farm.

Household electric refrigerators have been purchased on many farms because no other source of refrigeration was available. The majority of them, however, have been installed to enable the holding of perishable foods produced on the farm in usable condition for several days. Fresh vegetables, fruits, butter, milk and other dairy products, as well as eggs and poultry are produced on many farms. However, nature does not distribute the production of these foods in such a way as to make possible their entire consumption when ready for harvest. The electric refrigerator enables the farm housewife to store surplus material for several days and eliminate losses which would otherwise occur from spoilage.

The saving in foods, produced on the farm, effected by the household electric refrigerator, is not the most important factor, economically, to the farmer. By storing surplus products, which might otherwise be wasted, they are often sold in nearby towns or cities returning an income which would not have been possible without refrigeration facilities. Many farmers and their wives have definitely increased their farm incomes by means of electric refrigerators in changing from selling sour cream to a sweet cream market. Several have organized sweet cream routs of their own, storing the cream in their refrigerators until ready to be delivered.

Storage Originated in Household Units

Several years ago the writer, while visiting a number of Iowa farms with electric service, found a number storing sweet cream in their household refrigerators. Among them were Clyde Wilhelm of Grundy Center and Ralph Romine of Keota. An Indiana farmer, W. Y. Hartsough, North Manchester, whose profitable farming methods were presented in the August, 1933, issue of ELECTRICITY ON THE FARM, has found the electric household refrigerator a necessary piece of equipment in marketing sweet cream. On another Indiana farm, that of Roy Grimes, Veedersburg, butter is churned twice weekly, stored in the household



Electric refrigeration machine for cooling apple storage house on the Coffing Brothers farm.

refrigerator and marketed on Saturdays in Danville, Illinois, some 25 miles away.

Electrical refrigeration for the dairy farm has proven to be an almost indispensable agent in the production and marketing of milk. The storage-tank type is most commonly used by producers who sell their milk at wholesale. Dairymen who sell the milk produced on their farms at retail usually find the dry-box type best suited to their system of production and distribution.

Quick Cooling of Milk Important

The importance of quickly cooling milk or cream and holding it at low temperatures is generally recognized by farmers themselves as well as by regulations of State Boards of Health. In New Hampshire, North Carolina, Vermont and Wyoming milk must be cooled to 50 degrees F. or less. Several cities, located in states without such laws, enforce similar requirements. Included in this group are San Francisco, Los Angeles, Sioux City, Iowa, Springfield, Massachusetts, New York City, Salt Lake City and Milwaukee. In many other states and cities where Grade A milk is marketed, it must be cooled to 50 degrees or less immediately after being drawn from the cow and maintained at that temperature.

Exact amount of electric energy for cooling milk will vary considerably depending upon the type of storage used, insulation of the storage and temperature reduction of the milk as revealed in Bulletin 363 of the Purdue University Agricultural Experiment Station. Comparative costs of cooling milk in storage-tank type equipment between electric refrigeration and cooling with ice are contained in Bulletin 326 of the Vermont Agricultural Experiment Station. "Practically no difference was found in the costs of cooling milk by mechanical (wet storage type) refrigeration and by the use of ice, viz. 15 and 14.5 per 100 pounds." Ice costs were figured at 40 cents per 100 pounds and electric energy at 5 cents per kilowatt-hour. With ice available at the above figure and electricity at 3 cents per kilowatt-hour, as it is in some localities, the respective costs would be 14.5 and 11.4 cents per 100 pounds of milk cooled.

Electrical refrigeration for the fruit farm is now a reality and the number of orchards equipped with cold storage facilities is constantly increasing, especially those producing apples. This increase is due to electric service becoming available making possible the use of an electric motor for driving the refrigeration machine, possibility of lower costs for cold storage with more satisfactory arrangements for handling fruit than provided by commercial facilities, longer storage season that that afforded by cool storage with resulting longer period for marketing, and making possible more orderly marketing with higher return for the fruit.

Pioneers in Cold Storage

An Ohio orchardist, W. T. Mann of Geneva, was one of the first in the Middle West to install a refrigeration plant at his orchard. The following year two Indiana firms, W. C. Reed and Son, Vincennes, and Coffing Brothers, Silverwood, converted their cool storage houses into cold storage plants by installing electric refrigeration machines. In the first case, a storage capacity of 18,000 bushels is available and in the second, 40,000 bushels. The owners of these plants feel that the investments made have been to their financial advantage. Meredith Reed, junior member of the first Indiana firm, estimates that in 1933, number two and drop apples were sold from storage at approximately 40 cents per bushel (less storage cost) more than similar fruit which had to be sold from the orchard by other growers. Mr. Reed estimates the total storage cost at about 12 cents per bushel while the Coffings figure theirs at 11.8 when the capacity of the house is utilized. Formerly both firms stored some fruit in commercial storage houses at a cost of 22 to 25 cents per bushel. An additional feature of financial value is the ability to hold fresh cider where cold storage facilities are available. Small and waste apples converted into cider may make a good return when sold in that form.

Mervin Eby, Wakarusa, Ind., wheeling a truck load of his fancy Guernsey milk into his dry-storage type electric dairy refrigerator.

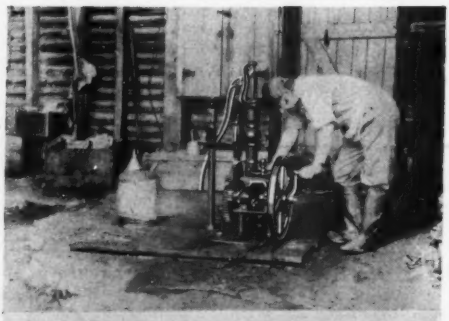
Vegetable Storage by Refrigeration

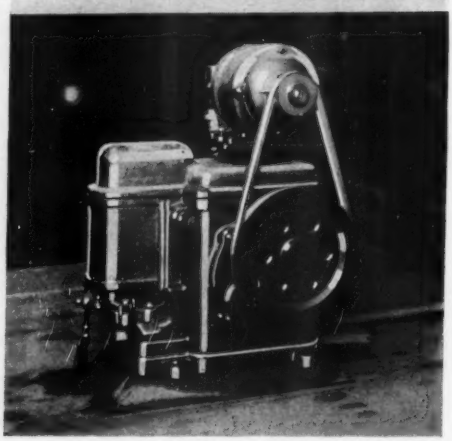
Market gardeners have also learned the possibility of utilizing electric refrigeration for storing perishable vegetables when the market is oversupplied. M. L. Ruetenik, a well known market gardener near Cleveland, Ohio, was one of the early pioneers in the use of refrigeration by the vegetable grower. Originally driven by an internal combustion engine, the refrigeration machine is now powered by an electric motor. A second installation has been recently installed on the farm of a son, Howard, on his muck farm at Orwell, Ohio. Other gardeners who have made such installations are R. F. Sams, Charleston, Georgia, the president of the National Vegetable Growers Association and Kiesling Brothers of Logansport, Indiana.

Right: It's the everlasting drudgery of pumping, pumping that makes an electric water system a real joy. Center: Better than the old pump but pretty tough sometimes when Dad's away. Bottom: Here it is. One of the modern deep well electric pumps — clean, sanitary, automatic.

RUNNING WATER or RUNNING FEET

By GEORGE W. KABLE





DID you ever try putting your lips against the iron pump handle on a frosty morning? Most youngsters have let curiosity prompt such a trial. It was a lesson in science by the "lip-stick" or pump handle method. When your lips "burned" you jerked away leaving some skin frozen to the pump handle and some sore spots on your lips.

Those were minor sore spots compared with some the old pump handle was responsible for. How about that daily pumping for watering the stock, or mother's discovery of an empty water bucket in the midst of preparing a meal; or the carrying and emptying on wash days and bath night?

The electric water system is a modern sore spot remover. It does as much as any other one device to bring some of the advantages of city life to the country while leaving the disadvantages behind.

That little electric pump motor adds a spark of interest to the daily task of drawing or pumping water. Pumping water is not such a hard job, but it's the everlasting drudgery of having to do it day after day and year after year that makes dad and mother plan to retire to the city or sends Bill and Mary looking for jobs in town rather than looking forward with pleasure to farm life.

Running water makes a lot of desirable things possible on the farm: Hot and cold water in the kitchen and for baths; stock water at the barn; a higher grade of milk through improved cleanliness in the milk house; time saved from pumping; better health due to cleanliness; and the convenience of an indoor sanitary flush toilet, especially in cases of illness or age. These are the things that

prompted an Oregon farm friend to say she would give up her car rather than electricity and her water system, if she couldn't have both. It's like that after you have it.

There are a number of degrees of convenience in water systems. A tank in the attic connected to the sink and filled by a force pump is better than the pump and carry system. A windmill certainly beats the hand pump—when the wind blows. A gas engine has an edge on the windmill usually, even though it may act balky on cold mornings or lay down on the job just at harvest time. None of these pumping methods offer the possibilities for sanitation at the well or the reliability and the carefree operation of the electric water system.

The modern electric water system is sold as a complete unit. Some of them are so simple that it is only necessary to connect them to the well and the discharge pipe and plug in the motor to be ready to go. And the cost may be considerably under $100.

In general there are two types of water systems. One is for use on shallow wells and the other with deep wells.

A shallow well is one in which the water is not more than 18 to 22 feet below the pump, and the flow of water into the well will keep the water at this level after the pump starts to operate. It's best not to try to "fudge" on the measurements either or some day the little pump will heave a sigh and go to work sucking air instead of water. You may not understand pump language but it will be saying, "The Boss fudged on me. He put that water just out of my reach and here he is feeding me electricity and I can't even bring him a drink."

Theoretically it is possible to raise water at sea level a distance of nearly 34 feet by suction. Practically a pump does not produce a perfect vacuum in the suction pipe. The maximum practical lift at sea level is about 25 feet. As one goes up from sea level that lift becomes less, being only 24 feet at 1,300 feet elevation and about 20 feet in mile high places like Denver. It is always good judgment too to allow some for a dry year when the water level may fall and for a little wear in the pump which may reduce its suction lift a few feet. Then the friction of the water and the vapor pressure in the pipe cut down the lift so that 22 to 18 feet are considered a very satisfactory lift, depending upon the elevation above sea level. If the lift is just a few feet more than that it is sometimes possible to use a shallow well pump by placing it in the cellar or in a pump pit.

But what if the water level is more than 25 feet below the discharge from the pump? Well that is where the deep well pump finds its place. The deep well pump has its "working barrel" or cylinder below the water surface in the well. The plunger in the cylinder is operated by pump rods of wood or steel connected to the pumping head at the top of the well. Deep well pumps cost somewhat more than shallow well outfits and they must be placed directly over the well, but they are always primed and ready to pump. They are used at depths of several hundred feet or even a mile in the case of oil wells.

Electric water systems have been greatly improved in recent years until there are now a number of very good ones on the market, and at reasonable prices. The essential parts of the system are a papa pump and a mamma motor. (The mammas usually keep us daddies running when there's anything good like a fresh water supply to be had.) The other essentials are a pressure tank for storing a quantity of water under air pressure; an air pump and valve to control the quantity of air cushioning in the tank; a pressure switch to start the pump when the pressure is low and stop it at the high pressure point; and a release valve, motor protection devices and an oiling system which makes the outfit automatic and just about fool proof. Once "pop" pump and "mom" motor are married there are no divorce courts, and the family of "Waters" kids are a joy producing lot.

There are a number of fine points about pump installations which should be discussed with your

One way of making the water connection convenient: use a wide sink in a cabinet with drainboards and locate it near the stove, table and cabinets.

A little brains and a short hose beats the bucket and splash system for filling the washing machine.

pump dealer or power company representative. For instance, a small pressure tank means that the pump will start and stop frequently and will give you practically a fresh water supply. Larger sized tanks, from 42 to 500 gallons, give some reserve supply for use in case of fire or if the power is off for awhile. With large tanks the pump starts and stops less frequently. The tank may be at the pump or at the house some distance from the pump, if the installation is properly made. Protection should be given against freezing and very damp locations should be avoided for pressure switches which are subject to rusting. Once these few details are taken care of they may be forgotten and "Old man ribber will just keep rollin' along."

Don't crowd a sink in a corner where there's no room for drainboards.

Here's a tip for the man who has a water system with gears running in oil. When you measure the oil in the gear case, just be sure the reservoir is not partly filled with water having oil floatng on top. You can be sure of this by removing the oil drain plug and letting any accumulation of water run out, then filling up to the oil level line. It's a simple precaution but may save a bearing sometime.

What To Do With Running Water

It would not be right to talk about pumps and motors and tanks without saying something about what to do with the running water after you have it. Of course a pipe to the stock tank or barn and to the milk house will not be forgotten. Leave that to dad. Or maybe it should not be left to dad either. I made a survey of a number of Nebraska farms a few years back and found where a farmer had for many years carried six pails of water from a stock tank to a hog trough twice a day. That was about 83 miles of walking a year with a water bucket in each hand. A hundred feet of pipe and a hose bib would have put the water in the hog trough while the other chores were being done.

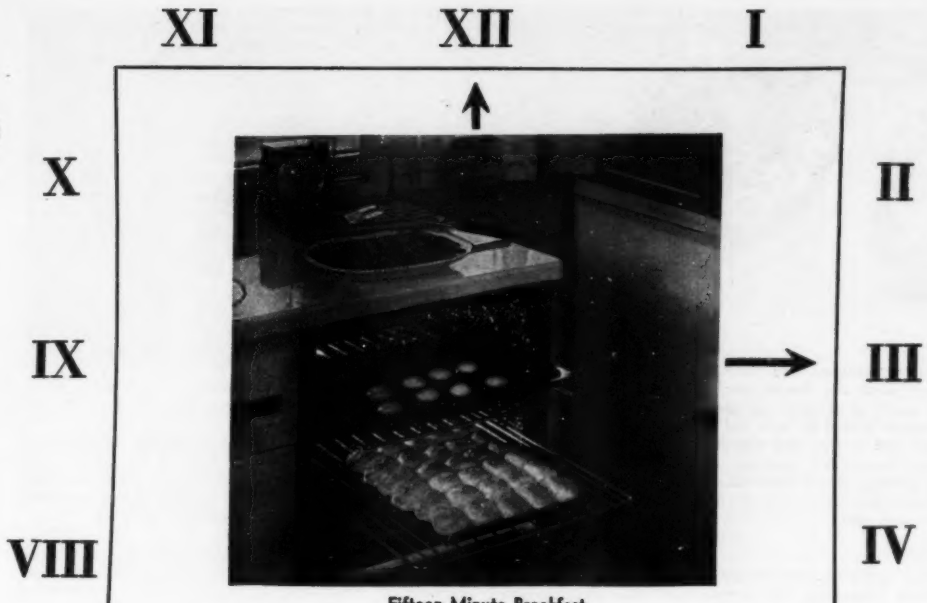
At the house there is need for some planning or perhaps a family argument before putting in the plumbing. Don't be so foolish as to place a little sink over in a dark corner without drainboards. That's the way most of them that I have seen are installed. The sink with running water is pretty much the work center in the kitchen. It need not be expensive but get one wide enough to hold the farm dishpan easily. They're made. Then put the sink near enough the stove and cupboards to be convenient, and build drainboards at either end—big ones to hold all the dirty dishes and the clean dishes. A threaded hosebib at the sink may not be the most "highbrow" fixture but it shows high intelligence if you do the washing in the kitchen and can fill the washing machine with a short piece of hose instead of lifting water in buckets.

A bathroom either above the kitchen or near it will save piping and plumbing costs. In some of the new economy houses now being planned the kitchen plumbing is on one side of a wall and the bathroom on the other side. It makes for a minimum of cost where such an arrangement is possible.

Don't Forget the Wash Sink

And don't forget that the men folks need a place to wash, shave and hang up a jacket. The kitchen sink is no place to wash off barn dirt or to scrape off a two day whisker crop. Whiskers make poor salad or dish decorations, and they delay the meals. Locate the wash sink on the porch, in the summer kitchen, or elsewhere, and give it its own water supply.

I haven't even mentioned green grass and flowers in dry weather, a healthy back yard garden or the cool cleanliness of a hosed-off back porch. And this at an operating cost of only 20 to 40 kw.-hrs. per month. Yes, and there are other sparks of enthusiasm for electric water systems. Just ask your neighbor who has one.



Fifteen Minute Breakfast.

COOKING BY THE CLOCK

By VERA B. MEACHAM

EVEN today the reputation of electric cooking suffers from a lingering libel—the whisper that it is slow. This idea persists in the minds of folks who remember the first electric ranges but have no familiarity with those of today. Those first ranges were slow. So were the first automobiles. Time has seen great changes in both. You can produce a cooking heat swiftly now with an electric range; and you know what Sir Malcolm Campbell can do with an automobile.

For fear you will not take the time to go down to some shop where electric ranges are sold, turn on the switches and test this speed for yourself, I want to tell you how I know they are fast.

Let's begin with the fire, or what serves as a fire in the electric range. You turn that fire on in the cold wires of the cooking unit just as the touch of the button that controls it. There it is, full, clean, glowing heat, ready at once. There can be no mistake about that. Any one will admit, I am sure, that this is a quicker method than gathering up kindling, laying a fire, beguiling it into burning, and then waiting till the stove is hot.

Getting the fire is quick work.

Now for the cooking. Not long ago I helped with a few definite tests, timed by the clock, of various simple cooking processes that go on day after day in most homes.

First we took about five pounds of potatoes, peeled them and cut them in half. We put them with 1 teaspoon of salt and 1/3 cup of water into a straight sided 2½ quart kettle with a tight fitting cover. The kettle was big enough to cover a 1500 watt burner completely.

We turned the burner on high and left it that way until steam began coming out under the edges of the cover in clouds. That was exactly eight minutes. Then we turned the current off entirely. Twenty minutes later, we took the potatoes up. They were thoroughly done, tender, dry and mealy. They had held their shape, and the ones above the water, those cooked entirely in steam, were just as well done as the others.

Half an hour is the time it usually takes to cook that amount of potatoes on any stove, isn't it? But here building the fire began at just the same time the cooking started—and half an hour saw the cooking done.

Yet women will tell you electric cooking is slow. And they will be capable women, too, honestly believing the thing they say. But they are admit-

Half an hour to cook these potatoes, the carrots and the beans. Or if you want the beans cooked longer, you can cook 1 quart of them in ¼ cup of water on a 1,500-watt burner turned to Low for 1 hour. You might as well put the butter and salt and pepper on them when you begin the cooking, too. If that steak weighs 2 pounds, it will take from 18–20 minutes to broil it. That's medium. Give it 10 minutes more if you want it well done.

ting quite unconsciously in the saying that they have somehow let themselves slip just a little behind the times on this one matter of modern cooking.

And there is one more point to consider here. To cook these potatoes the current was turned on in that burner just eight minutes. On another range it might have been seven, it might have been ten, depending on the voltage, and on the weight and type of kettle used. But let us stick to the eight minutes I counted off on the clock. Using a 1500 watt burner for eight minutes takes just 2/10 of a kilowatt hour. If your current for cooking costs six cents a kilowatt hour this cooking would cost you but a cent.

I hope you noticed how little water we put in that kettle. We could do that wtih perfect safety, because we were using a definitely controlled heat. We used it, a lot of it, just long enough to bring that water to a good boil, and then we turned it all off. The burner stayed hot enough to keep the water boiling until the potatoes were done—but it did not boil the water away and let them stick. By using this small amount of water we had followed the recommendations of food experts and saved more of the mineral salts of the potato, we had speeded up our cooking, and at the end, we had cut a corner from its cost by making use of the heat stored in the burner.

We tried cooking potatoes another way, too.

We put two large, smooth skinned potatoes into a two quart aluminum pan, covered it tightly and set it, just as it was, on a 1000 watt burner turned to Low. We left it there for one hour. We built the fire and baked the potato while the hour hand passed from five to six on the clock.

That is the usual time for baking potatoes of average size, one or a dozen, isn't it? After you get the fire hot enough. We were experimenting with an economical way of having baked potatoes for lunch when the family shrinks to two.

Is this slow?

A 1000 watt burner on Low for one hour takes just ¼ kw.-hr. Not a second's waste of fuel before or after the baking. Not a calorie of heat gone up the chimney—just a highly efficient transfer of heat from the wires to the pan and the food within.

The pan?

Not a mark on it. It looked so clean that if your husband were helping you with the dishes, he would be apt to say, "This one's clean" and hustle it away before you wash—and he has to wipe an unnecessary dish.

Then we cooked eggs.

We put four eggs and four teaspoons of water into a kettle. Had we wanted more, we would

Mrs. Herman Zinn, who lives near Topeka, Kan., can cook three foods on one burner with these clover leaf pans.

An exhibit of electrical appliances at the Pennsylvania Farm Products Show.

have added another teaspoon of water for each four additional eggs. We put the kettle on a burner turned on High. As soon as the steam began coming out under the cover, we turned the current off, but we left the pan on the burner for exactly three minutes more.

The white of the eggs was firm, but tender, and the yolks were still soft. They were mouth watering, inviting, wholly desirable eggs.

Too slow? Too expensive?

It doesn't seem so, does it? The current was on about three minutes. If you try this, you will find that this length of time depends on the dish and on how cold the eggs were to start with. We found it between six and seven minutes from the moment of starting the cooking fire to the cooked egg, and only half of that time, remember, were we using any electricity at all; the heat stored in the burner finished the job.

Starting With a Cold Oven

When you are baking in the oven, you cannot produce a baking temperature as soon as you turn the switch. Not for most foods. Though many modern recipes do direct you to start the meat or the cake, even the biscuits in a cold oven.

Following these directions we baked as inviting a tin of baking powder biscuits as I've ever set these eyes on. We made the biscuits as usual and put the baking sheet directly on the baffle of the lower unit. Then we closed the door and turned both top and bottom units on High. We set the control at 400 degrees. When the termostat cut off the current, the biscuits were done. They were light and a good brown on both top and bottom. It took ten minutes.

Oven Heating Doesn't Take Long

Just how long it takes to heat an electric oven to 325 degrees and 450 degrees depends on the stove, on the size of the oven, and the wattage of the units as well as the voltage on your lines. From five ot ten minutes has been reported for various stoves. It is generally less time than we need to stir up a cake or get a pie ready certainly.

Using the oven economically involves planning to make good use of the heat for several dishes at once. Since it takes the same amount of cur-

(Continued on page 17)

State Farm Show Portrays Use of Electricity

THE Pennsylvania Farm Products Show, covering eleven acres of ground under one roof and drawing 250,000 attendance, is the largest farm gathering in the State.

Through the exhibits and demonstrations, the important place of electricity on the farm and in the home is evident. Ten years ago, it would have been the exception to find electrical equipment displayed at the Show. Today, it is rather the exception to find an exhibit that does not include the application of electricity. In the little theater where the Home Economic Vocational girls demonstrate their projects, a number of these include electricity for cooking, lighting, refrigeration, etc. In the educational exhibits of the vocational schools, eleven out of fourteen were making some use of electricity in connection with their display.

Exhibits of dairy equipment electrically operated were numerous covering such uses as water heating, sterilizers, milk coolers, milking machines and barn ventilators. The poultry exhibits featured electricity for incubating, brooding, both battery and hover type, and lighting. One of the newer applications of electricity to the poultry industry was a paper presented by John Nicholas of the Pennsylvania State College on the precooling of eggs to maintain market grades.

Water systems to suit all purposes and conditions were there to supply water to the house, the dairy, poultry, for irrigation and fire protection. Farm equipment suitable for operation with a 5 to 7½ h.p. motor included the thresher, feed grinders and silo fillers. Graders and cleaners for the fruit and potato growers were there in number equipped for electric drive.

In addition this year, a portion of the space was devoted to featuring "Better Light—Better Sight." The lamps themselves, designed for this purpose, proved of general interest. Many people would stop to actually go through a demonstration of the operation of the light meter.

Another portion of the space was made up as an all-electric-kitchen, with demonstrators using the range, refrigerator, dish washer and small appliances. The ranges and refrigerators of different manufacturers were used in the kitchen throughout the week. The all-electric-kitchen attracted a great deal of interest and many favorable comments.

HANDLING HAY the Modern Way

By S. C. MILLER

SAVING one man and one team of horses when putting up hay, and doing the job in quicker time, are the results of using an electrified hay hoist. At least, that's the experience of many who have added this unit to their farm equipment.

There are several types of hay hoists now in service in farms throughout the country. Probably the simplest and most widely used is one which is equipped with two drums; the single drum type is also quite widely employed.

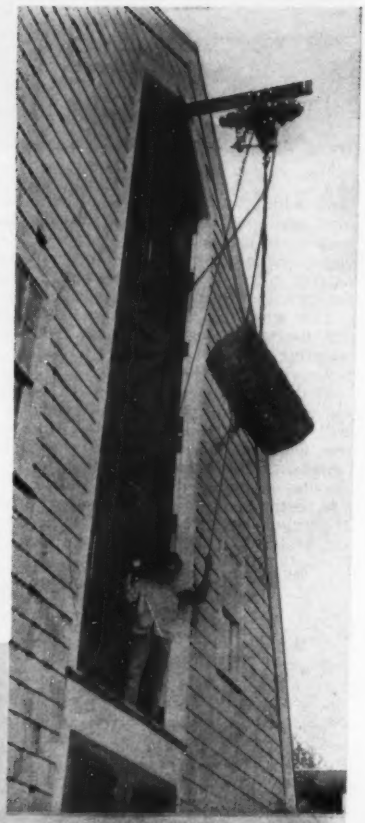
With this set up, it requires a man to operate the hoist and dump the hay where desired in hay mow.

Another type which is quite popular is the one built somewhat along the style of a traveling crane. With this type of hoist, the motor and hoisting equipment are mounted on a unit which travels on an eye-beam, or hay track, and is controlled either by rope or drop cord (electrical) with a button at the end to control current as desired.

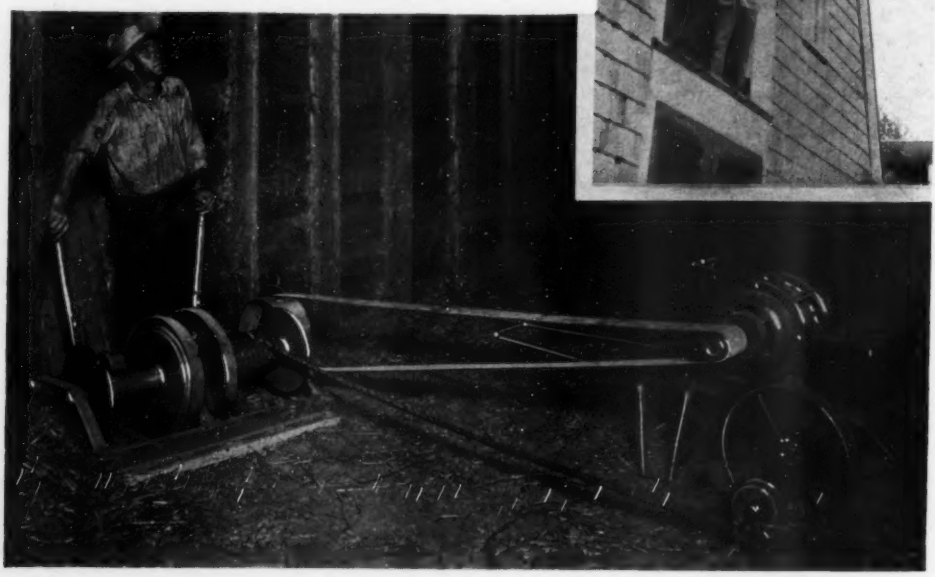
In the latter case, the hay is hoisted, lowered or sent in to the mow by the operator who is stationed on the top of the load or at some other point.

Either forks or slings may be used in connection with the hay hoist. The brake stops or slows up the carriage or fork at any place, thus making it

(*Continued on page 24*)



Right: Baled hay takes a ride on the hay hoist. Below: The chore motor helps fill the hay mow.



Cooking by the Clock

(*Continued from page* 15)

rent to heat the oven regardless of whether you are going to use it for a cake or a whole meal, utilizing this heat wisely becomes a problem of good management for any thrifty housewife to work out for her own meal getting.

Here is a good example of how it can be done for breakfast.

Miss Frances Weedman, Home Service Director of one of the electric range companies, has planned this procedure for what she calls her "15 minute breakfast." It includes hot biscuits, broiled bacon and eggs.

First she sets the oven control at 475 degrees and turns the oven switch to Preheat. Then she mixes and rolls out the baking powder biscuits, putting them on a cookie sheet. When the temperature in the oven reaches 475 degrees, she turns the switch to Bake, and puts the biscuits in. During the next seven and a half minutes—I can be exact on paper, but I imagine she does not keep her eye on the second hand of the clock to time the baking—anyway for about half of the baking time, she can get the coffee going, put the fruit and butter, the milk and cream on the table. Perhaps she even sets it then, too. You seem to be able to do more in seven minutes in the morning than you can at any other time of the day. At any rate, when the biscuits are half way done, she changes the setting of the switch to Broil, and puts the bacon on the broiler under the upper electric unit. Then she closes the door part way while the bacon broils.

When the bacon is done, she puts it on a hot platter, takes out the rack and shield from the broiling pan, and breaks the eggs in the hot fat. She slips the broiler back under the unit for a few seconds while she takes up the biscuits.

Fifteen minutes in the oven gets that good hot breakfast ready for the table.

So you see the new electric ranges furnish plenty of heat quickly. Gossip must change its tune if it is to keep within sight of the facts.

Turkeys Lay 30 Days Earlier Under Electric Lights

Progressive Indiana farmers are finding turkey raising another field in which electricity is showing the way to more profitable operation.

An interesting example of this is now under way on the farm of John S. Capper, near Star City, Indiana, where the installation of electric floodlighting has materially speeded up the laying of the hens.

Mr. Capper reports that as a result of floodlighting his turkey yards by electricity, his turkeys have started laying just about 30 days earlier than they have in previous years.

He is not only floodlighting the yards, but the buildings as well, and his turkeys seem to be quite content under their artificial sun, apparently unaware that man has speeded up their season for them. Mr. Capper's farm is served by a rural line of the Northern Indiana Public Service Company.

Better Hare Than Hair

Flea Trainer: "Say, I understand you've been complaining that my fleas interfere with your act."
Magician: "Yeah, they get in my hare."

Before summer

RUNNING WATER — YOUR FAMILY DESERVES IT

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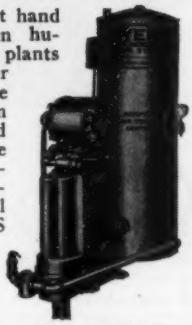
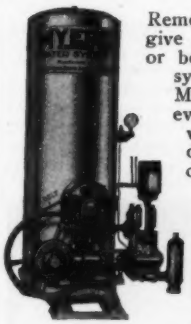
SUMMER is close at hand—the season when humans, animals and plants all require more water than at any other time—the season when farm work is heaviest and running water at the turn of a tap most appreciated. Now is certainly the time to install that reliable MYERS Water System you so long have wanted. Our prices still are remarkably low. But rising costs of manufacture make it almost certain that they will again go up before another summer arrives.



Water systems are one of the first improvements for which money may be borrowed from the Government under the Federal Housing Act. See your Myers dealer for information.



Remember that no one can give you either better values or better quality in a water system than MYERS. Models and sizes to meet every need of individual water service. Styles for deep or shallow wells; for operation by hand, windmill, gasoline engine or electricity. Capacities from 150 to 10,000 gallons per hour. Fill out and mail the handy coupon below for desired information and name of the nearest MYERS dealer.

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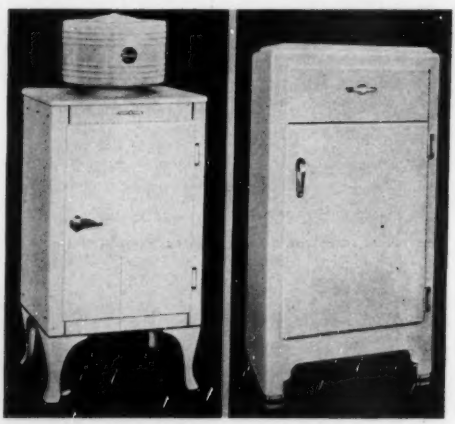
Conducted by
GAIL MEREDITH

COLD KEEPERS

THE reason for getting a good refrigerator is not new to any of you housewives within reach of newsprint and within hearing of the radio. None knows better than you the part refrigeration plays in safe food and appetizing meals. You realize full well that milk, most fresh food stuffs, and many cooked foods have to be kept at a temperature below 50 degrees to prevent the growth of the bacteria that make them sour or make them spoil.

The reasons why this refrigeration may well be done with electricity are simple, too, but they cannot be squeezed into a single sentence.

With an electric refrigerator you have a storage cabinet chilled to the temperature you want, and kept at that temperature day and night, summer and winter, year after year, without work, or worry, or watching on your part. You do not need to plan how much current you'll need to run the box till Tuesday; you do not have to worry about whether it will come or not. No one need stop his work to go after it. Effortlessly, tirelessly, continuously, it comes over the wires just as you use it. No more than you need to keep that box and the food it holds as cold as you want. And day by day, the meter in the basement measures the current that runs the motor so you pay for exactly what you use—no more—no less. There is no waste; just a regular supply as great as your needs.



A Great Time Saver

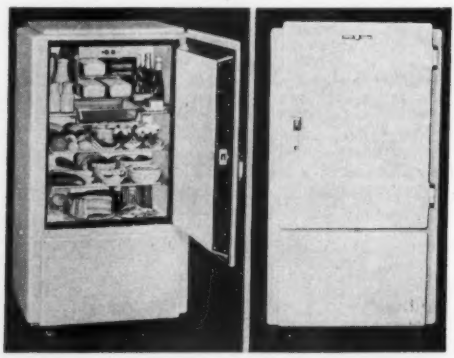
There is a great saving of time and effort in having this safe, cold storage place for food right at your elbow in the kitchen where the preparation of food must go on. If you count the miles you travel up and down the cellar stairs, out to the well and down to the spring house with food that must be kept cool if it can't be kept cold, you will find them measuring plenty, I'm sure. Those journeys end when you have a refrigerator facing the kitchen table.

There are other savings of time, too, in the changed routine you can establish with an electric refrigerator. Since foods keep fresh and wholesome for what seems an almost unbelievably long time, you can very easily prepare foods in advance for many dishes and several meals.

Salad dressing, pastry, rolls, cookies, white sauce can be made at your convenience, covered or wrapped tightly, and stored for days in the refrigerator. It saves time to get a good supply of salad greens ready for use and put them in the container that keeps them fresh.

If you have school lunches to think about, you can make up a variety of sandwich fillings and keep them safely in the refrigerator.

Besides keeping foods safe in this constant dry cold somewhere above freezing and below fifty, these automatic refrigerators just about earn their keep during the summer months by providing an unfailing supply of cold drinks and ice cubes, and making possible the frozen desserts that families favor.



Design is a matter of personal choice.

Speaking of appetites suggests that there are a good many foods that are greatly improved by chilling. This is true of lettuce and fruit. It is

true of pastry and biscuit and rolled cookie dough. Even if they are not made up ahead, chilling them before rolling them out for baking, improves their texture.

Then there should be a word or two for left overs. Kept in a refrigerator they can make more farewell appearances than a grand opera star. And if your imagination does not flag, their last appearance may well be more appetizing than their first. They lose nothing of taste or quality when they are properly stored.

So in buying a refrigerator to save food, you save time and work, too. And all the luxury and pleasure of giving the family more appetizing meals and thrilling new foods is an extra that comes with the box.

Examine Construction Features

When you start out to shop for a refrigerator, you may plan to buy entirely by name plate from a manufacturer whose products you are familiar with through word of mouth advertising from the experiences of your friends. Many of us buy that way. Even if you are, you will want to notice the construction of the box you buy. It should be well insulated first of all. There should be at least two inches of insulation in the walls, the bottom, the top and the doors of the refrigerator. But it is well to remember that the mechanism in the box you buy is of first importance. It must be reliable to give you uninterrupted service. It should be durable so your investment will serve you many years; it should be quiet so it will be pleasant to live with; it should be efficient so it will be economical to run.

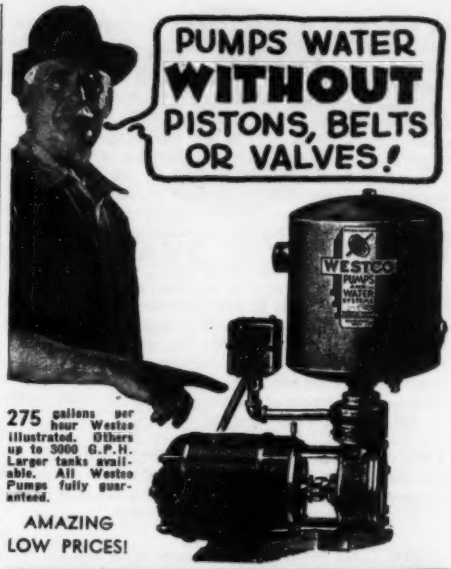
After studying the mechanism, you will want to notice the lining should be smooth and hard, stain proof and acid proof. It should not chip easily. It should be made all in one piece so there are no cracks or seams where food can stick. Rounded corners make cleaning easier.

The cabinet itself is of prime importance. It must be strong and well built. The hinges and latches must be sturdy enough to hold the door shut tight. I saw a refrigerator not long ago whose door sagged so you could put a match between it and the box. Years of service does not change the hanging of a well built door on a well built box. Hinges and latches are strong enough to hold it in place.

Locating the Refrigerator

After you have decided on the make you want and the size you want, you have to decide where you want it to stand. Perhaps there is just one place it will go, but if you have a choice in the matter, you will do well to consider these careful suggestions made by Mrs. Satrell Danner of the Georgia State College of Agriculture in a publication called "Cold Facts."

"The location of the refrigerator with respect to convenience in use and to hot and cold parts of the house will appreciably affect its efficiency. It should be placed so that it will not overheat and will not be exposed to frequent temperature changes and to moisture. Placing the refrigerator near a stove or in the sunshine may increase its energy consumption as much as 100%. Exposure to frequent temperature changes and moisture, as on an open or screened porch, may not only have a harm-



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ful effect upon the materials of the walls and insulation of the refrigerator, but it may do serious damage to the mechanism of a mechanical refrigerator.

"Proper location of the refrigerator with reference to other kitchen equipment will save the homemaker many steps during her busy days. The refrigerator may best serve its purpose when placed convenient to the worktable and to the door where supplies are received for storage purposes. The refrigerator and other kitchen equipment should be arranged so that a logical sequence of work may be planned.

"The purpose of the condensing mechanism of a mechanical refrigerator is to convey the heat which is inside the cabinet to the surrounding air outside the cabinet. Whether the condensing unit is located on the top or in the bottom of the cabinet, free circulation of air around the unit must be permitted to insure efficient operation. If the unit is built in the bottom of the refrigerator, it is desirable to place the refrigerator at least four inches from the back wall. If the condensing unit is on top of the cabinet and depends upon simple radiation for the dissipation of heat, it is not advisable to use an improvised cover since this would hold heat in the coils thereby over-working the motor."

Warm Weather Ahead

Mix crushed pineapple with the cottage cheese and top with salad dressing and a sprinkle of paprika. Or you can use the cheese plain and serve with a slice of pineapple. Add a roll, a couple of olives, with a few potato chips, and you have a good warm-weather lunch.

• • •

Just a Fuse Plug

A FUSE plug isn't much to look at, just a thin, narrow strip of metal fitted in a plug that screws into a socket in the fuse box. But if anything goes wrong with it, your lamps won't light, your iron won't heat, and your motors won't run. It is just as important as that.

When you screw it in, one end of the strip of metal touches the wires that come from the meter, and the other is brought in contact with the wires that carry the electricity through your house. It is a bridge in the path along which the electricity travels. Take it away, and there is no thoroughfare for current. It is made so you will take it away, burn it up, whenever you overload the wires.

Perhaps I can make it clearer if I go back a minute to remind you of three important characteristics of electricity.

In the first place, it is always trying to get back to the place where it started, and it is trying to get back over the shortest, easiest way.

Circuit Must Be Continuous

Next it will not even start to flow unless it has an unbroken path back to its source. Electricity lights a lamp, heats a range, and runs a motor because you have made these things a part of the path or circuit, it must travel. If that path is cut off by the breaking of a wire or the opening of a switch, electricity does not flow.

And last of all, the amount of current a copper wire can carry depends on its size. The network of these wires inside your walls is divided into

circuits, the number depending on the size of your house and your electrical needs. The ordinary circuits will carry 1,650 watts.

Don't Overload Circuits

Each circuit is fused at the point where it branches off from the main wiring entering the house, and that fuse—a 15 ampere fuse for ordinary house wiring—is built so it will melt when your load reaches the limits of safety.

It is a watch dog for your electric wiring.

If your circuits were wisely planned you may never overload them in ordinary use. But it occasionally happens. For instance, some dark morning you may be getting breakfast with the center light and the light at the sink on. 160 watts. The toaster, 600 watts and the percolator 400, are both on. That's 1160. Then your high school daughter dashes out to iron an organdy collar and cuff set. The minute she plugs in the 800 watt iron, the lights go out. 1,960 watts is too big a load for that circuit.

Circuit breaker.

If the insulation in the cord leading to any electrical device wears through and the two wires get together, they form a short circuit that lets far too much electricity through, overloading the circuit and blowing the fuse.

Of course fuses are of different sizes as house wiring is of different sizes, but the ordinary household size is 15 amperes. There is no use at all in putting in a 20 ampere fuse to increase the load that circuit will carry. That would be like muzzling the watch dog, so he could neither bark nor bite. The fuse of the right size insures the protection of your property because it will not let you overload a circuit long enough for danger.

Determine Cause of Burned Fuse

When the lights go out, you had better detach the last electrical machine you connected before you go down to put in a new fuse. If you don't, and the same load is on the wires, the second fuse will burn off, too.

If your house was built or wired for electricity recently, the metal fuse box is probably in your back hall. If it is ten or a dozen years old, it is much more likely to be in the farthest, darkest,

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corner of the basement. At least those I know best are.

First you find a board or box to stand on. A dry board that will insulate you from the cellar floor in case it is damp. Then you pull the main switch that cuts off the current from all the wires of your house.

If your circuits are plainly marked Kitchen, Living Room and Hall, Bed Rooms, you know at once which fuse has burned out. Holding the flash light in your left hand, unscrew the plug with your right. Use only one hand for this even if some one else holds the light for you. Never put your fingers in the socket. Screw in the new fuse, close the main switch, and you are ready to start over again.

Locating the Burned Fuse

If your circuits are not marked, you examine the little metal strip through the window on the face of the plug. My husband insists firmly that you can tell at a glance if that strip is burned through. The theory is sound, but when I go down and peer at them dimly through their ising-glass fronts, I generally select one that looks as though it might be gone, unscrew it, fit in another, and call up stairs,

"Are the lights on?"

If I guessed right they are. If no, I keep on pulling the main switch, screwing plugs out and screwing the new one in, until the chorus from upstairs exclaims,

"They're on now."

In the most modern wiring a circuit breaker is replacing the fuse box. It can be placed right on the wall in the kitchen or in the hall. If you overload the circuit, the circuit breaker trips and cuts off the current just as blowing a fuse does.

When you have taken off the appliance that caused the overload or found a piece of faulty equipment, you can restore the service by pushing over the lever that resets the circuit breaker. It is convenient; it demands no new parts for replacement, and it allows without tripping a momentary overload greater than the wires can regularly carry.

This is particularly convenient when there are motors on the circuit, for motors draw a good deal more current just at starting, though in running they may give a load well within the capacity of the circuit. This new device allows this short overload without interrupting the service, and still it does not permit it to continue long enough to heat the wires.

The circuit breaker takes care of itself; you must watch the supply of fuses. A reserve supply always on hand will insure you quick restoration of service after such minor interruptions as these. There is no substitute for a fuse in the fuse box. A twist of hay wire, a penny behind the plug may give you current on that circuit again, but it leaves your wiring at the mercy of any overload you may impose on it. With nothing to warn you, you may easily so overwork that circuit that the heat of the wires will burn off the insulation, endanger the walls, and threaten the safety of your home.

You are guarded from these dangers with the right fuse in the socket or a circuit breaker taking care of the job.

I feel like that silly neighbor of our grandmother's who went to town with the parting admonition to the children,

"Don't stick beans up your nose!"

but I must urge,

"Don't use pennies for a fuse."

Explain That

Ants are supposed to be the hardest working creatures in the world. Yet they seem to have time to attend all picnics.

Amazing!

Two men who had an extraordinarily successful "night out" were comparing notes some days afterwards.

"My goodness," said one, "that was a terrible night. I'm rather ashamed to say that I finished up in the police station."

"Lucky dog," said the other bitterly, "I found my way home."

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HOOSIER electric water systems end water worries. Entirely automatic. Many exclusive features. Oil and water cannot mix. No rusty water. Improved refrigeration type motors cannot burn out. For deep or shallow well; any current. Made by makers of STAR Windmills.

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Illustrates newest models and shows how to select the system best suited to your requirements. Write today.

FLINT & WALLING MFG. COMPANY
515 OAK ST., KENDALLVILLE, IND.

Running Water..$43.75

Do you know that a complete shallow well system may be obtained for as little as $43.75. Write us today for complete information, giving depth of your well and approximately how many gallons of water you require daily. Uniflow Manufacturing Co., Department E. Erie, Pa.

MILK COOLERS

Ask for bulletin describing Uniflow line of Electric Milk Coolers.

GUARANTEED UNIFLOW

"THE PUMP SUPREME"

AMAZING PRIME-CONTROLLED ELECTRIC ONE WIRE FENCE

Big savings in fence costs. One electrified barb wire makes any field cow or hog-tight. Electricity only 10c per mo.

THIS PRIME ELECTRIC FENCE CONTROLLER makes Electric Fence Sure and Safe. Just plug into any 110 a.c. or 32 d.c. light socket.

Delivers harmless sting but holds stock tight. Proved 4 years. Pays for itself on first field you fence.

Write PRIME MFG. CO. 1740 So. 1st St. Milwaukee, Wis.

FREE CATALOG and TRIAL OFFER

ON THE AIR

Conducted by James J. Hegarty

Paul Douglas Must Prove His Existence

One way or another Paul Douglas is determined to prove his existence. The popular announcer recently sent out an alarm after applying for a passport, that he might go abroad for his vacation. He has been unable to find any record whatsoever of his birth. The archives of his native Philadelphia failed to yield any such record. But now Paul has received a letter from another Paul Douglas who lives in Philadelphia and who asserts:

"In the interest of the welfare of the Douglas clan, I will cheerfully lend you my birth certificate which I am sure rests in the archives of the Philadelphia Health Department. I'm sure I must have one because my parents took me to Europe when I was a kid and I managed to return each summer without much difficulty. So if you do want to go to Europe, there you are."

Countess Olga Albani, who sings on the air waves for the enjoyment of millions.

• • •

COLONEL STOOPNAGLE and BUDD were having lunch in a restaurant near the studios. Suddenly the Colonel leaned over and whispered, "Don't look now, Budd, but two fellows are just going out the door and one of them has your hat on."

• • •

New Drama Serial Now on Air

"THE Story of Mary Marlin," a human interest drama based on the life of a courageous 35 year old woman who is striving to regain her husband's love, is being heard on CBS stations every day except Saturday and Sunday.

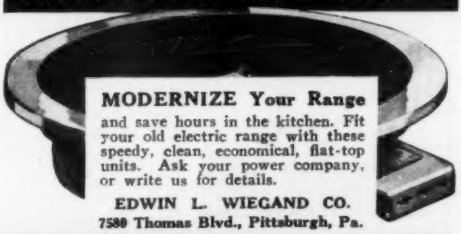
Outstanding members of the cast include Joan Blaine, as "Mary Marlin," Art Jacobson in the role of "Joe Marlin," Carlton Brickert and Francis X Bushman, star of screen, stage and radio.

• • •

Studio Pianist Must Be Versatile

STUDIO pianists are unidentified performers who execute a few bars of music or may be called upon to fill exactly 14 minutes and 20 seconds. These studio pianists reveal some exciting

CHROMALOX
SUPER-SPEED ELECTRIC RANGE UNITS



MODERNIZE Your Range
and save hours in the kitchen. Fit your old electric range with these speedy, clean, economical, flat-top units. Ask your power company, or write us for details.

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7580 Thomas Blvd., Pittsburgh, Pa.

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A well built and properly chosen water system should last a life time.

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In cooperation with your local power company or dealer we are offering personal service to help you select the DURO WATER SYSTEM exactly suited to your requirements.

Pumps and complete water systems for shallow or deep wells . . . or any other source of supply.

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THE DURO CO., DAYTON, OHIO
Please send me your free booklet, WATER SYSTEMS FOR THE HOME AND FARM.

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CITY ..... STATE .....

and amusing incidents. Their jobs require nimble wits as well as fingers.

Not all of their work consists of supplying brief chords where a talk or music falls short of the 15 minute periods into which radio programs are divided. Several times each week many of the studio pianists play a full program of their own. Their talents are available also for auditions and rehearsals.

The pianist "stands by" during programs originating outside the main studios. For the length of that program the studio pianist must take her place at the piano in a studio with an engineer and announcer. The engineer listens to the remote broadcast through earphones. A direct telephone to the master control room is used to tell him whether the program will end "on the nose," meaning exactly on time, or whether it will fall short. If it finishes early the engineer points through the glass panel separating studio and control room at the pianist. Thereupon she plays a selection until another pointed finger indicates that time is up and the announcer is to identify the station. In the case of a "fill-in," the pianist sits in the studio during a program being broadcast from that studio. On a sign from the speaker or announcer she will know whether she is to play or not.

Often the studio pianist is called upon to play a full program on a moment's notice in cases, for example, where speakers are unable to appear because of illness or when atmospheric conditions defeat an international broadcast.

A tense moment occurred when a studio pianist at the CBS studios was drafted on a few seconds' notice to play a full selection. Asked what she would play, the lady stammered nervously and then said, "The Dawn of Creation." The announcer, pinched for time, spoke into the microphone, "Miss ——— will play 'Dawn of Creation' by Yarmar." The selection turned out to be nothing more than a skilful improvisation. The name of the composer was likewise improvised. After the program both agreed it was certainly a "dawn of creation."

Carla Romano, CBS pianist whose favorite composer is Brahms, once was hurried into the studio to play. When she asked how long the selection was to be the announcer dashed to the microphone and said, "Miss Carla Romano will play 'How Long.'" Another classic story concerns the time when one was so quickly recruited to play that she inadvertently dropped the cigarette she was smoking into her purse. And while she played she watched an increasing volume of smoke arise from her pocketbook, which contained her pay check.

All studio pianists at the network studios have an exhaustive repertoire from which they may draw for any particular occasion. In addition each has some improvisation which often fits well into a brief period that must be filled-in. And time is such a science with them that they can fill any period "on the nose." For a 15 minute program Carla Romano has but to play the Bach-Busoni "Chaconne," which consumes 14 minutes and 20 seconds, leaving 40 seconds for the announcement.

Handling Hay the Modern Way

(*Continued from page* 16)

possible to employ a larger fork. For it can be set with ease at any point on the load through control of operation of the motor.

The man on the load controls the hay hoist.

Very little electricity is required in the operation of a hay hoist. In one particular case, only one-third kilowatt hour was needed per ton of hay delivered into the mow. It is estimated that it takes one horsepower in the motor for each 135 to 150 pounds of load at the hoisting speed of 125 feet per minute.

The hay hoist can also be used for hoisting baled hay and baled straw, as well as the loose materials.

SAVE HAYING TIME AND LABOR

For use with one, two or three phase Electric Motors. Get motor and full data from your local power dealer.

HANDLE YOUR HAY FORK "IT" WITH THE **IRELAND HOIST**

PAYS FOR ITSELF THE 1ST SEASON

"Unloads 3 times faster"—"Saves man and team" "Worth 3 times the money I paid"—"Certainly works well"—"Can't go wrong with an Ireland Hoist"

Quiet in action with perfect control. Capacity 1200 pounds direct pull. Thousands in use.

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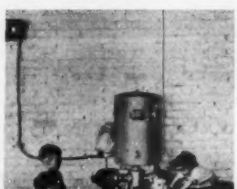
IRELAND MACHINE & FOUNDRY CO. NORWICH, N. Y.

SAFE TO INSTALL WHERE CHILDREN PLAY



A Burks Pump has no pulleys, gears or belts to endanger children. No valves, no pistons, only one moving part. Cannot knock, pound or hammer. Self Priming. Operates years without service. 14 years of Success. Get money saving facts from your Power Company, your plumbing dealer or us.

DECATUR PUMP CO., DECATUR, ILL.

Questions and Answers

Conducted by H. J. GALLAGHER

Automatic Switch Trouble

Question: *If a pressure tank is not water logged, what causes the automatic switch to keep "cutting" in and out frequently and on different pressures? I have had considerable trouble in this respect with two different switches.*

F. C. H.

Answer: Between the pressure tank and the pump, there is usually a check valve in the pipe line to facilitate in the operation of the fresh water tap.

If the pressure in the pipe between the check valve and the pump is reduced by any of the water escaping, the switch will function and keep the motor starting and stopping. The remedy is to drill a pin hole in the check valve disc or make a slight groove on the edge of the disc with a three-cornered file, so enough water can leak past the check and maintain the same pressure in the pipe as in the tank. This also insures the pump being kept primed.

If the pipe between the pressure tank and pump is too small or offers too much resistance in the form of elbows or other fittings, the switch operation will be affected. A larger discharge pipe from the pump to the tank, or connecting the switch in the pipe line between the pump and check valve closer to the tank, should correct the switch trouble.

Charging Batteries

Question: *I would like to use* 110 *Volt A. C. to help start my truck motor during cold weather. What kind of a transformer or rectifying unit would be necessary and how much would it cost?*

P. B.

Answer: The most practical methods I know of for using alternating current in starting motors is to connect a battery charger to an A. C. circuit and keep the truck or auto battery well charged.

If the generator of your truck is driven by the fan belt, the fan belt can be removed from the generator pulley and a 1/3 or ½ H.P., A.C., motor belted to the generator. The motor should drive the generator about 1,000—1,200 R.P.M. to charge at the rate of 10 amperes.

If the truck generator is not driven by the fan belt, a second-hand car generator can usually be purchased at little expense from the junk dealer and can be used in combination with the A. C. motor for battery charging. The generator is connected to the battery by a wire from the generator cutout to the charging pole of the battery. A wire from the frame of the generator to the frame of the truck grounds the generator.

With either of these three methods it is necessary to remove the battery from the car.

It is always well, especially during cold weather, to keep the battery terminals and terminal connections free from corrosion material. The terminals may readily be cleaned by washing them off a few times with a solution of a tablespoon of ordinary soda and a quart of water. A liberal coating of vaseline on the battery terminals and connections will greatly retard corrosion. Do not use cup grease as a substitute for vaseline.

Wire Size for Motor Operation

Question: *We have a 5 horsepower Westinghouse motor, speed* 1750, *volts* 220, *cycle* 60, *phase I, which we wish to use in connection with a Triplex water pump. Would two number four wires be the correct size? My pneumatic air tank is* 700 *feet from the pump and motor and* 70 *feet higher. The motor is also* 700 *feet from the meter box. The pressure on the pump when it stops will be* 115 *pounds.*

Which do you advise using: wires on poles, cable in conduit or park-way and farm cable without conduit? If I use poles I would have to buy them and have them set.

S. W.

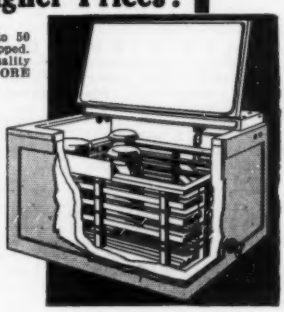
Answer: To operate a 5 horsepower motor a distance of 700 feet from the meter box on 220 volt service would require two number two wires as conductors.

The most economical installation would be weatherproof wire on poles.

The pressure switch for starting the motor under low pressure and stopping it at 115 pounds pressure can be secured through any of the larger pump companies. The pressure switch could be installed to the pump discharge line near the motor.

COOL YOUR MILK . . . and Get Higher Prices!

Get this REAL MONEY MAKER. . . . It pays for itself from the very start. One user SAVED $34 IN ONE MONTH. . . . Another says, "Extra Milk Profits Paid For It." . . . ESCO (Low Cost) COOLING EQUIPMENT MAKES MONEY FOR YOU . . . because it quickly cools milk to 50 degrees or below and keeps it cool until shipped. It reduces your bacteria count, raises the quality of your milk . . . and MAKES IT MORE SALABLE.



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I am making ..... cans of milk ..... bottles of milk per day. Please send information on Electric Milk Cooler. Also free booklet, "HOW TO MAKE BIGGER MILK PROFITS—THE ESCO WAY."

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is the original patented milk cooler

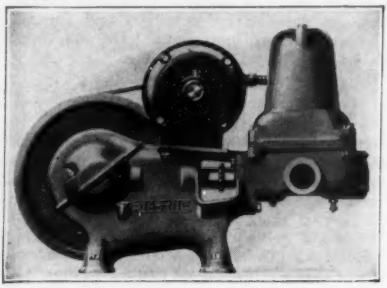
What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Electric Water Pump

Electric water pumps probably eliminate more heavy labor and needless drudgery on farms than



any other single item of electrical equipment. For a power cost of a few cents per month all of the water used in the household may be provided under pressure by the automatic electric water pump.

An entirely new line of shallow well electric pumps has been announced by a manufacturer of the Middle West. This pump is available in sizes ranging from 250- to 600-gallon capacity. Alternating current motors are of the repulsion-induction type while those for direct current service are compound wound. Power end and water end castings are standard for all models, so that the capacity may be changed by providing other castings and motor to suit the capacity. A guarantee of one million starts is offered by the manufacturer for the automatic starting device.

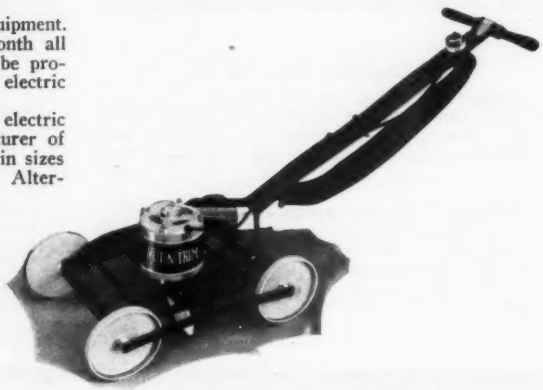
Electric Iron

The electric iron has been the first household appliance adopted on the farm because of its step-saving possibilities and convenience of operation. It has banished the endless walking from stove to ironing board with sad irons in many farm households. Modern in design is a new iron announced by a middle-western manufacturer of a large line of electric household appliances. This streamline iron weighing only 3½ pounds, is heated by a 1,000-watt element with 115 or 125 volt aternating current. The combined soleplate and pressure plate is cast from duralumin, while the remaining metal parts are finished in chromeplate. The names of materials to be ironed are shown on the heat dial so that to iron any particular type of material, the operator merely turns the indicator to that position. The cord, with spring protector, is permanently connected.

Electric Mower

Mowing the lawn during the summer frequently falls to the lot of the farm housewife or boy since the men are busy with field work. Many times the job goes undone because all members of the family are too tired to push the lawn mower after a hard day's work. The electric mower will be welcomed by people accustomed to using power for the numerous jobs of the farm.

Power for the electric mower is furnished by a 1/3-horsepower 110-volt ball-bearing motor, protected by a grid screen from cut grass. Electric service is provided for the motor through 100



feet of heavily insulated rubber-coated two-wire cable to a switch on the mower handle, with a cable from switch to motor.

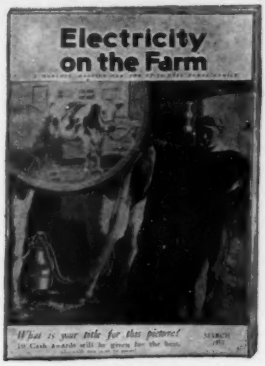
The high-carbon tempered steel blade, which is attached to the motor shaft, has four cutting edges and is reversible. The mower can be pushed or pulled as it cuts on both the backward and forward movements. Changing from pulling to pushing is done by reversing the handle and not reversing the motor. The four wheels keep the blade at the regulated distance from the ground while guards on four sides protect trees, shrubs and blades from injury. A special safety guard prevents the operator from stepping too close to the blade.

CLASSIFIED ADVERTISING

BROODERS—The unexcelled "Lyon Improved Electric." Other practical well proven types. ALARMS—Burglar, Fire, Temperature, Power-Off, etc. HEATING EQUIPMENT—for incubators, home made brooders. Water heaters. FLY and INSECT KILLERS—Send for complete electrical catalog and brooding data. LYON ELECTRIC CO., San Diego, Calif. (Pioneers of Electric Brooding).

IDEAL HAY HOIST operates Hay Carrier with 2 to 5 H.P. motor or engine. Saves extra team and driver all through busy haying season. 10 DAYS' FREE TRIAL. Write for circular 205. UNIVERSAL HOIST & MFG. CO., CEDAR FALLS, IOWA.

COVER TITLE CONTEST



MARCH COVER

MAY RULES

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better—and short slogans will be given preferences over rhymes.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before June 1st.

Winning names and titles will be announced in the July issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

Awards for March

First Prize — $20

"The electric milker puts the farmer on his feet."

MRS. CLARA S. McCLOSKEY, R.F.D. 1, Orwell, Vt.

Nine $2.00 Cash Prizes

"At ease—while electricity does the squeeze."
E. C. PENNOCK, R.F.D. 3, Box 31, Ft. Collins, Colo.

"Electricity takes the arm out of milking on the farm."
MARGARET VAN DEUSEN, R.F.D. 3, Elsie, Mich.

"Boss and 'Bossy' unconcerned—
Since the electric way was learned."
ELSIE EAMES, Oxford, Mass.

"Electricity switches the tale to sanitary, labor-saving milking."
MRS. R. R. RANKIN, R.F.D. 1, Elizabeth, Pa.

"Out goes the three-legged stool;
In comes the electric tool."
PEARL C. TOUSEY, R.F.D. 1, Waterport, N. Y.

"The farmer did them one by one,
The electric milker does the sum."
MRS. DEAN BURGET, R.F.D. 1, Kempton, Ind.

"Clean pure milk in this pail below,
The other is open for dirt, you know."
ADELBERT D. BAILEY, R.F.D. 1, Brunswick, Me.

"Bossy stood for me—now she stands for electricity."
MARGUERITE CLIFFORD, R.F.D. 1, Valparaiso, Ind.

"The electric milker eclipses stool and pail."
GARLAND EYLER, R. 4, Eaton, Ohio

My title for the May Front Cover picture of ELECTRICITY ON THE FARM is .....

.....

.....

.....

(a) List the electrical appliances you do not own in the order you plan to purchase them.

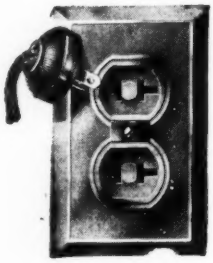
1..... 3..... 5.....

2..... 4..... 6.....

My name is..... R.F.D. .....

Post Office..... County..... State 5-35

Is Your Home Wired . . .



for Convenient Electric Service?

The Operating Cost of Appliances and Good Lighting is Lower Than Ever

IS YOUR home so wired that you can have LIGHTING for SAFE SEEING wherever you want it? Are there *enough* electrical outlets throughout the house . . . so that you may fully enjoy the comfort, convenience and economy made possible by the use of modern ELECTRICAL APPLIANCES?

It may interest you to know that the Federal Housing Administration makes loans for additional wiring . . . although the cost of additional wiring is surprisingly low.

Advantages of Good Wiring

IT eliminates any need for two- and three-way plugs.

IT does away with the use of unsatisfactory extension cords.

IT provides *enough* electrical outlets throughout the house (and farm buildings) . . . to make lighting and electrical appliances CONVENIENT at all times.

If you wish detailed advice . . . a representative of the company will be glad to make recommendations which you can use to get bids from . . .

Your Local Electrical Contractor

West Penn Power Company

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